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Amendments to the Claims:

Please amend Claims 76 and 79 and add new Claims 92-97 as set forth below.

1-75. (Canceled)

- 76. (Currently amended) A method of detecting the presence or absence of a mutation in the sequence of polycystic kidney disease type 2 (*PKD2*) gene in a human subject, comprising the steps of:
 - (a) obtaining a polynucleotide sample containing the sequence of *PKD2* gene from a human subject;
 - (b) comparing the polynucleotide sample to a reference human wildtype *PKD2* sequence (SEQ ID NO:6); and
 - (c) determining the differences, if any, between the sequence of *PKD2* gene in the polynucleotide sample and the reference wild-type *PKD2* sequence (SEQ ID NO:6), wherein the differences are mutations of *PKD2* gene which comprise one or more deletion, insertion, point, or rearrangement mutations; an absence of differences between the sequence of *PKD2* gene in the polynucleotide sample and the reference wild-type *PKD2* sequence (SEQ ID NO:6) is indicative of the thereby detecting the presence or absence of a mutation in the sequence of *PKD2* gene in a human subject.
- 77. (Previously presented) The method of Claim 76, wherein the subject is an embryo, fetus, newborn, infant, or adult.

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- 78. (Previously presented) The method of Claim 76, wherein the polynucleotide sample is DNA or RNA.
- 79. (Currently amended) A method of detecting the presence or absence of a mutation in the sequence of polycystic kidney disease type 2 (*PKD2*) gene (SEQ ID NO:6) in a human subject, comprising the steps of:
 - (a) obtaining a polynucleotide sample containing the sequence of *PKD2* gene from a human subject; and
 - (b) performing sequence analysis of the polynucleotide sample to detect the presence or absence of a mutation in the sequence of *PKD2* gene (SEQ ID NO:6) of the human subject, wherein the mutation comprises a deletion, insertion, point, or rearrangement mutation.
- 80. (Previously presented) The method of Claim 79, wherein the subject is an embryo, fetus, newborn, infant, or adult.
- 81. (Previously presented) The method of Claim 79, wherein the polynucleotide sample is DNA or RNA.

82-91. (Canceled)

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- 92. (New) A method of detecting the presence or absence of a mutation in the nucleotide sequence set forth in SEQ ID NO:6 in a human subject comprising the steps of:
 - (a) obtaining a polynucleotide sample containing the sequence of polycystic kidney disease type 2 (*PKD2*) gene from a human subject;
 - (b) comparing the polynucleotide sample to the nucleotide sequence set forth in SEQ ID NO:6, wherein SEQ ID NO:6 sets forth the human wild-type *PKD2* gene sequence; and
 - (c) determining the differences, if any, between the sequence of *PKD2* gene in the polynucleotide sample and the nucleotide sequence set forth in SEQ ID NO:6, wherein the human wild-type *PKD2* sequence is set forth in SEQ ID NO:6, thereby detecting the presence or absence of a mutation in the nucleotide sequence set forth in SEQ ID NO:6 in a human subject.
- 93. (New) The method of Claim 92, wherein the subject is an embryo, fetus, newborn, infant, or adult.
- 94. (New) The method of Claim 92, wherein the polynucleotide sample is DNA or RNA.

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- 95. (New) A method of detecting the presence or absence of a mutation in the sequence of polycystic kidney disease type 2 (*PKD2*) gene in a human subject, comprising the steps of:
 - (a) obtaining a polynucleotide sample containing the sequence of *PKD2* gene from between genetic markers AFMa059xc9 and AICA1 on chromosome 4 from a human subject, wherein genetic markers AFMa059xc9 and AICA1 flank the *PKD2* gene;
 - (b) comparing the polynucleotide sample to a reference human wildtype *PKD2* sequence (SEQ ID NO:6); and
 - (c) determining the differences, if any, between the sequence of *PKD2* gene in the polynucleotide sample and the reference wild-type *PKD2* sequence (SEQ ID NO:6), wherein the differences are mutations of *PKD2* gene which comprise one or more deletion, insertion, point, or rearrangement mutations; thereby detecting the presence or absence of a mutation in the sequence of *PKD2* gene in a human subject.
- 96. (New) The method of Claim 95, wherein the subject is an embryo, fetus, newborn, infant, or adult.
- 97. (New) The method of Claim 95, wherein the polynucleotide sample is DNA or RNA.